

Records – a user defined type

In our periodic table project, we want to store the following information in arrays

- Element Name (string)
- Element Symbol (string)
- Element Atomic Mass (single)

Now, we could declare three arrays each with indices from 1 .. 118.

We will introduce the concept of a record instead with this example involving solar system data. We need to insert a module into our project and put our record definition in there:

```
'User defined type to store the data for a single planet
Public Type Planet
Planet_Name As String
Orbital_Radius As Single
Orbital_period As Single
End Type
'array of planets
Public Planets(1 To 9) As Planet
```

We will be able to access the array of records Planets() in our main program under the UserForm.

Consider the data from the textfile OrbitalData.txt

Notice that the data in OrbitalData.txt is a comma separated values (CSV) format. We don't need to worry about the first four lines of this data, so the first four lines don't have commas. The commas define the columns of data in this textfile. There are 10 columns for each planet

Name	#	Distance	O_Period	Incl	Eccen	Discoverer	Date	A.K.A.
		Orbits (000 km)	(days)					
Sun	-	-	-	-	-	-	-	Sol(0)
Mercury,	I,	Sun,	57910,	87.97,	7.00,	0.21,	-	(0)
Venus,	II,	Sun,	108200,	224.70,	3.39,	0.01,	-	(0)

```

Option Explicit
Private Sub LoadData()

    'we only want to load the planet name, planet orbital radius and planet orbital period
    Dim strTmp1 As String, strTmp2 As String, strTmp3 As String, strTmp4 As String, strTmp5 As String
    Dim strTmp6 As String, strTmp7 As String
    Dim strPath As String
    Dim i As Integer
    Dim intFile As Integer 'to store the file handle (a number)
    strPath = ThisDocument.Path + "\OrbitalData.txt" 'set location to input file

    intFile = FreeFile 'automatically assign a free file number to intFile

    Open strPath For Input As intFile 'we associate the actual file (strPath) with the file number (intFile)

    'we need to skip the first four lines of data
    For i = 1 To 4
        Line Input #intFile, strTmp1 'read in a whole line from the textfile into strTmp1
        ListBox1.AddItem strTmp1
    Next
    i = 0
    Do Until EOF(intFile)
        i = i + 1
        Input #intFile, Planets(i).Planet_Name, strTmp1, strTmp2, Planets(i).Orbital_Radius, _
            Planets(i).Orbital_period, strTmp3, strTmp4, strTmp5, strTmp6, strTmp7
        Planets(i).Orbital_Radius = Planets(i).Orbital_Radius * 1000 'need to multiply by 1000
        ListBox1.AddItem Planets(i).Planet_Name + vbTab + Str(Planets(i).Orbital_Radius) + vbTab + _
            Str(Planets(i).Orbital_period)
    Loop
    Close (intFile) 'should always close file when done!
End Sub

Private Sub UserForm_Initialize()
    Call LoadData
End Sub

```